wherein Sn is present in an amount of 3-6 at% and said alloy having shape memory and superelasticity characteristics at human body temperature.

REMARKS[1]

Claims 1-4 and 8-16 are pending and stand rejected. Of those, claims 1-4, 9-11 and 16 stand rejected under 35 U.S.C. § 102(b) over the English language translation of the abstract of JP 10-219375 A to Araya et al. ("Araya"). Each of claims 8 and 12-15 stands rejected as allegedly obvious over Araya in view of various secondary references. Specifically, claim 8 stands rejected as allegedly unpatentable over Araya in view of U.S. Patent No. 5,429,501 to Farzin-Nia et al.; claim 12 stands rejected as allegedly unpatentable over Araya in view of U.S. Patent No. 6,127,597 to Beyar et al.; claim 13 stands rejected as allegedly unpatentable over Araya in view of U.S. Patent No. 4,795,458 to Regan; claim 14 stands rejected as allegedly unpatentable over Araya in view of U.S. Patent No. 5,215,105 to Kizelshteyn et al. and claim 15 stands rejected as allegedly unpatentable over Araya in view of U.S. Patent No. 5,551,871 to Besselink et al.

Claim Amendment

Claim 1 has been amended to recite: "Sn is present in an amount of 3-6 at%." Support for this amendment is found throughout the specification, for example, at FIG 8 (showing alloys with 3-6 at% tin recover from deformation at room temperature.) No new matter has been added.

Claim 4 has been cancelled without prejudice or disclaimer to the subject matter claimed therein. Applicants reserve the right to introduce the invention recited in claim 4

[1] Applicants' Counsel thanks Examiner Wilkins for the courtesies extended during the interview held October 9, 2002.

during future prosecution of the application or during prosecution of any continuations or divisional applications stemming therefrom.

Entry of amendment and reconsideration on the merits are respectfully requested.

Anticipation Rejection

As amended herein, claim 1 recites an alloy having Sn in an amount of 3-6 at%. Claim 1 also recites that the alloy has shape memory and superelasticity characteristics at human body temperature. FIGS. 4, 5 and 6 of the specification illustrate shape memory behavior of alloys having different amounts of each of Nb and Sn.

The claimed lower range of 3 at% approximately corresponds to 6.2 wt%. Araya alleges an alloy composition having Sn not more than 5 wt%. Thus, it is respectfully submitted that Araya does not anticipate or render the claimed invention obvious. Each of the rejected claims 2-3 and 9-11 and 16 is deemed not anticipated by Araya by the virtue of its dependence on claim 1. Accordingly, Additional reasons for patentability of each of the dependent claims will not be proffered here.

Applicants respectfully request reconsideration and withdrawal of the anticipation rejection over Araya.

Obviousness Rejection

Claim 1, and other claims depending therefrom, are also not rendered obvious by Araya.

As discussed Araya neither discloses nor suggests an alloy having tin in the claimed range of 3-6 at%. The claimed lower range of 3 at% approximately corresponds to 6.2 wt%. Therefore, the embodiment recited in claim 1 does not overlap the range alleged in Araya and therefore is patentable over the reference.

Moreover, at paragraph [0006] Araya discloses an upper range for each of the suggested ingredients and explains that by adding each element at the given range it is possible to obtain the titanium alloy with stabile properties. The reference discloses an upper range of 5 wt% for tin and expressly teaches away from incorporating more than 5 wt% of tin in the alloy (paragraph [00016] discloses "a kind of Sn (tin) *not more than* 5 wt%"; emphasis added.) In the exemplary embodiments presented in Table 1, Araya either precludes tin from the composition or discloses tin in an amount of 2 wt% and 4 wt%. Because the reference expressly teaches away from the claimed invention, Applicants respectfully submit that one of ordinary skill in the art, reading Araya's disclosure, would not have been motivated to exceed 5 wt% tin.

Finally, the claimed shape memory and superelasticity characteristics at human body temperature are affected directly by the presence of tin in the claimed range. At the time of Applicants' invention conventional alloys either precluded tin or neglected its effect tin on the final composition. This is evident in the so-called "Molybdenum (Mo) Equivalent" factor which fails to account for any tin present in the alloy. The Molybdenum (Mo) Equivalent factor was discussed extensively in the Communication with the Office dated May 23, 2002. As discussed in the Communication, Applicants discovered that addition of tin in the claimed amounts drastically affected the transformation temperature of the alloy. The result was an alloy with superelastic characteristics at body temperature. Pursuant to Applicants' disclosure, the claimed characteristics appear only when the content of Sn range from about 8-10 wt%. This range is substantially higher than the range taught by Araya ("not greater than 5 wt%). Thus, Applicants respectfully submit that the composition of Araya would not have the claimed shape memory and superelasticity characteristics at human body temperature.

For at least these reasons, Applicants respectfully submit that Araya does not render the invention recited in claim 1 unpatentable. Because each of the claims 2-3 and 8-16 depends from independent claim 1, which as discussed is neither anticipated nor rendered obvious by Araya, it is respectfully submitted that each of the dependent

claims is patentable at least by the virtue of its dependence on claim 1. Hence, additional reasons for patentability of each of the dependent claims will not be proffered here.

Applicants respectfully request reconsideration and withdrawal of the obviousness rejections over Araya and various secondary references.

CONCLUSION

It is therefore respectfully submitted that claims 1-3 and 8-16 are now in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

The Examiner is invited to contact the undersigned attorney if a telephonic communication is believed to be helpful in advancing the examination of the present application.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. §1.16 or §1.17 to Deposit Account No. 11-0600.

Respectfully submitted,

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Date: Oct. 15, 2002

RED-LINED COPY OF THE AMENDMENT

IN THE CLAIMS:

Please cancel claim 4 without prejudice or disclaimer of the subject matter claimed therein and amend the claims as follows:

1. (AMENDED) An alloy comprising (1) Sn, (2) at least one of Ti and Zr, and (3) at least one of Nb and Ta;

wherein Sn is present in an amount of 3-6 at% and said alloy having shape memory and superelasticity characteristics at human body temperature.